

AD-A110 749

ROYAL AIRCRAFT ESTABLISHMENT FARNBOROUGH (ENGLAND)

F/6 15/3

SWEDISH DEFENCE RESEARCH ABSTRACTS 80/81-2 (FROE FORSVARS FORSK--ETC(U))

JUN 81

UNCLASSIFIED

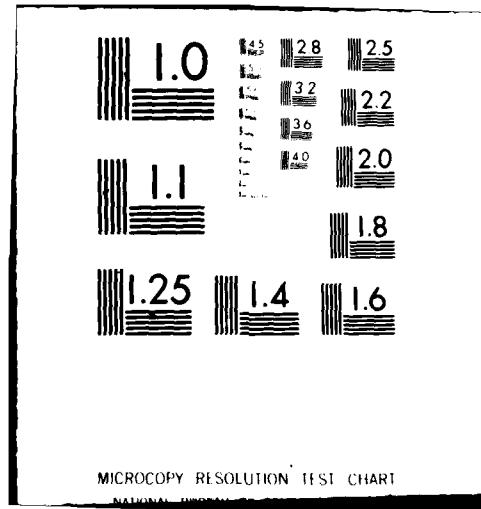
RAE-LIBRARY TRANS-2069

DRIC-BR-80560

NL

1 8
AD-A110 749

END
3-82
DTIC



AD A110749

Trans 2069

UNLIMITED

BR80560
Trans 2069

(2)



ROYAL AIRCRAFT ESTABLISHMENT

*

Library Translation 2069

June 1981

DTIC

08 08 1982

SWEDISH DEFENCE RESEARCH ABSTRACTS 80/81-2

by

National Defence Research Institute, Stockholm

*

Procurement Executive, Ministry of Defence
Farnborough, Hants

FILE COPY

UNLIMITED

01 21 82 124

Translations in this series are available
from:

THE R.A.E. LIBRARY
Q.4 BUILDING
R.A.E. FARNBOROUGH
HANTS

New translations are announced monthly in:

"LIST OF R.A.E. TECHNICAL REPORTS,
TRANSLATIONS and BIBLIOGRAPHIES"

<u>Accession For</u>	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
<u>Justification</u>	
By _____	
<u>Distribution/</u>	
<u>Availability Codes</u>	
<u>Dist</u>	Avail and/or Special
<u>A</u>	

UDC 355.45(485) : 001.5 : 014.3

ROYAL AIRCRAFT ESTABLISHMENT

Library Translation 2069

Received for printing 2 June 1981

SWEDISH DEFENCE RESEARCH ABSTRACTS 80/81-2

[FRÖ FORSVARS FORSKNING REFERAT 80/81-2]

by

National Defence Research Institute, Stockholm

Translator

D.P. Barrett

Translation editor

M.G.B. Weedon

EDITOR'S SUMMARY

The Swedish National Defence Research Institute issues a quarterly list of unclassified Reports published by the Institute. The titles of these Reports and informative abstracts have been translated English. This volume is the second issue of 1980/81. Further volumes will be translated in due course. The main topics covered are: Protection - atomic, biological, chemical; ammunition and weapons; conduct of war, information and commands; vehicles and space-craft; reliability and logistics; human factors; associated studies and their solutions; positive methods for limitation and control of armaments; psychology reports.

EDITOR'S NOTE

The Reports are in Swedish unless some other language is indicated (usually English). When requesting Reports it should be appreciated that an English version will not normally be available, and that the prices of the original Swedish documents have not been indicated in this Translation. Reports may be obtained from:

FDA Centralkansliet, 104 50 Stockholm, Sweden

Index to FRÖ 80/81-2

- A PROTECTION - ATOMIC
- A2 Nuclear warheads, basic characteristics and products
- (51) *BAC* - a computer program to compute the shielding factor of buildings against initial radiation
- (52) *HINK* - a computer program for interactively forming input data to the *BAC* radiation protection program
- (53) Computer simulation of detonation waves (in English)
- D AMMUNITION AND WEAPON TECHNOLOGY
- D1 Technology of explosives
- (54) Examination of 2-nitrodiphenylamine as a propellant stabiliser.
2. Repeated and extended measurements
- (55) Some micro-calorimeter measurements of a couple of newly-manufactured propellants
- (56) Explosive mixtures of LPG aluminium and air
- D2 Gunnery technology and associated ballistics
- (57) Stability measurement and impact-pattern tests of projectiles with different placing of the driving band. MALFOM 4.4831, Stage 5
- D4 Technical aspects of warheads
- (58) Experiments with plasterboard walls on a steel-frame carcase when stressed by an air shock wave
- (59) Deformation, speed and acceleration of plastic systems when subjected to stress of an air shock wave
- (60) Calculation of the fragmentation of explosive shells, Part 2
- D6 Protection from exploding warheads
- (61) Capacity of a damaged public water supply system - fire service water studies at Västerås
- D8 System studies
- (62) Introduction of critical path analysis in calculations of the effects on aerial targets
- E CONDUCT OF WAR - INFORMATION AND COMMAND TECHNIQUE
- (63) Optical multiplexing technique
- (64) Microwave tubes. Literature survey No.1, covering the period August 1978 - December 1979
- E1 Reconnaissance, target location and fire control
- (65) Investigation of accuracy on the ground for a shortwave position-finding system
- (66) Manufacture of complex systems of integrated electronics with batch sizes less than 10000 circuits per year. Some requirements and proposals for organising the work
- (67) Some methods of automatic target detection and plot-to-target association. A study of the literature
- (68) Millimetre-wave techniques. A study visit to Switzerland and the Federal German Republic in May 1980
- (69) The use of radar and microwave radiometry in spy satellites
- E2 Communications
- (70) Computer program for processing ionospheric data

- | | |
|------|--|
| E3 | <u>Guidance, navigation and target identification</u> |
| (71) | Positional errors in hydroacoustic navigation |
| E4 | <u>Countermeasures, including signal interception and technical intelligence</u> |
| (72) | The mechanism of a Baltic earthquake source obtained by analysis of recordings of surface waves |
| (73) | Weighted linear dispersive delay lines: calculations of the time function of an output signal when the input signal is an almost matching linearly-swept sine wave |
| E5 | <u>Technical reliability</u> |
| (74) | Industrial safety aspects of electronic control and protection systems |
| F | <u>VEHICULAR AND SPACECRAFT TECHNOLOGY</u> |
| F4 | <u>Spacecraft</u> |
| (75) | The 'Salyut-6' space station between 19 August 1979 - 30 June 1980 |
| F9 | <u>Materials</u> |
| (76) | The effect of lightning on aircraft and composite materials |
| H | <u>HUMAN ENVIRONMENT</u> |
| H3 | <u>Venous gas bubbles while flying with cabin altitudes of airliners or general aviation aircraft 3 h after diving</u> (in English) |
| (79) | Case report: Intracardial gas bubbles in relation to altitude decompression chokes (in English) |
| (80) | Influence of preoxygenation on intracardial gas bubbles and decompression sickness during flying after diving (in English) |
| (81) | Differences in ear and rectal temperatures on the rewarming of chilled test subjects |
| (82) | Haemodynamic effects of extreme positive pressure breathing using a two-pressure flying suit (in English) |
| (83) | Man in the Sea II. Development trends in underwater activity |
| (84) | Thyroid studies in pregnant and newborn beagles, using ¹²⁵ I (in English) |
| H6 | <u>Individual and group efficiency</u> |
| (85) | Skeletal muscle metabolism; morphology and function in sedentary smokers and non-smokers (in English) |
| (86) | Some features of the ultra-marathoner: A case study (in English) |
| (87) | Irregular working hours. An investigation by interview into the working hours environment of locomotive drivers |
| (88) | The working environment of Ordnance workers. Part I: Theoretical frame of reference |
| (89) | The working environment of Ordnance workers. Part 2: Ordnance workers in an Army unit |
| (90) | The working environment of Ordnance workers. Part 3: Experience and reality in Ordnance work - a concluding discussion |
| H7 | <u>Testing and job analysis</u> |
| (91) | Cardiopulmonary responses to arm exercise performed in various ways (in English) |
| (92) | Muscle fatigue in man: with special reference to lactate accumulation during short term intense exercise (in English) |
| H8 | <u>Training procedures</u> |
| (93) | Function of male youth during military service. Follow-up study of a youth clientele (in English) |

A PROTECTION - ATOMICA2 Nuclear warheads, basic characteristics and products

(51) FOA report C20376-A2

BAC - a computer program to compute the shielding factor of buildings against initial radiation
 Göran Danielson

October 1980

The report describes the computing method and the transmission of data in the *BAC* computer program which calculates the shielding factor of buildings against initial radiation from nuclear explosions. The shielding factor, *i.e.* the ratio between the dose at some point in a building and that in the open air, is calculated separately for neutrons which impinge on the building, gamma radiation from fission products and secondary gamma radiation. For computing the transmission of radiation in a building *BAC* employs data on the passage of radiation in concrete slabs, which means that the program can be principally used for shelters and other buildings in which the walls and floor/roof are largely made of concrete, brick etc. The report also contains a user's guide to the program and some comparisons between the *BAC* result and values computed by Monte Carlo methods. The *HINK* program, used for the interactive read-in of data into *BAC* is reported on in the FOA report C20377-A2 which is issued at the same time.

(52) FOA report C20377-A2

HINK - a computer program for interactively forming input data to the *BAC* radiation protection program
 Lisbeth Pers and others

October 1980

HINK is a computer program which through the console describes a building, which must be a rectangular parallelopiped with rooms on several levels and with openings in the internal and external walls. These geometrical data, supplemented with other physical data, constitute the input to the *BAC* radiation protection program which computes the shielding factors of buildings against initial radiation.

The report contains a user's guide to *HINK*, a description of the method of representing and verifying the building data and a description of the principles of interactivity and the method of programming it.

The *BAC* radiation protection program is reported in FOA report C20376-A2, which is being issued at the same time.

(53) FOA report C20390-A2

Computer simulation of detonation waves
 Nils Hörnqvist and Janerik Persson

(in English)
 December 1980

A numerical method is analysed for simulating detonation processes (of TNT) in terms of the requirements for the number of spatial intervals and the time taken to obtain a detonation wave.

D AMMUNITION AND WEAPON TECHNOLOGYD1 Technology of explosives

(54) FOA report C20378-D1

Examination of 2-nitrodiphenylamine as a propellant stabiliser.

2 Repeated and extended measurements

Jan Hansson and Ingemar Ohlsson

October 1980

explosive shells, Part 2
October 1980

calculations of fragmentation from the m/54
d by which to calculate the direction and
e continuum-dynamic program *TOODY*. This
the SRC model ERSB, when an improved version
lso calculated both the SRC and the m/54
tigation shows that sufficiently accurate
an the one quoted in the earlier report, so
method for routine application.

supply system - fire-service

Kapilashrami (KTH) December 1980
investigations of fire service water
rea. The subject of study was Västerås.
he local fire brigade and borough engineer,
d with the Department of Water Conservancy
oncludes the series of investigations
n wartime

mathematical model of the public water network was used to calculate the maximum extracted populated areas. The object was to practical example to perform calculations

sis in calculations of the

October 1980

analysing relatively complex critical paths
rg. This algorithm has now been implemented
this report. It also describes how critical
he effect of warheads on aerial targets. A
~~REPORT~~ in order to assess the consequences
at a judgment of the ability of the target

E CONDUCT OF WAR - INFORMATION

(63) FOA report A30022-E
Optical multiplexing technique
Lars Knutsson

This report gives a descriptive optical multiplexing technique described in a study of some 50 technical articles and years. The emphasis is placed on particular those employing multi-modal

Increased interest has been shown in optical fibres, since fibre materials have been found to have low attenuation. The most interesting multiple wavelength multiplexing, in which different wavelengths are transmitted simultaneously over a single fibre, has been demonstrated.

Integrated optics is a term .
the function of which is based on opti-
a substrate by ion implantation, and a
the same chip. It is predicted that in
optical techniques as LSI (large-scale

The report concludes with a telephone link on a single fibre.

The list of references includes applications of optical multiplexing techniques.

(64) FOA report C30200-E
Microwave tubes. Literature
August 1978 to December 1979
Herbert Steyskal

This is an attempt to analyse supported by a comprehensive examination. microwave tubes are concerned, the greater travelling-wave tubes. At least an entirely altogether new methods of signal generation, power, and in certain cases frequencies. the gyrotron, these have not yet left

E1 Reconnaissance, target locat
(65) FOA report A30021-E1, E3
Investigation of accuracy on
position-finding system
Åke Blomquist and Rune Lundq

A position-finding system based on FOA 3 took part in these measurements of wave propagation. The object was to track continuous movements of vehicle movement.

The report gives a descriptive account of the system with respect to wave propagation. In the present design the system fails to sat

- (66) FOA report C30198-E1
 Manufacture of complex systems of integrated electronics with batch sizes less than 10000 circuits per year. Some requirements and proposals for organising the work.
 Rolf Helgott

August 1980

The present report is a collection of current information on the subject of LSI/VLSI, based on the needs and problems encountered in FMW-F:F, and includes some suggestions for future activity.

- (67) FOA report C30199-E1
 Some methods of automatic target detection and plot-to-target association. A study of the literature
 Rune Thor

August 1980

This literature survey covers methods intended to improve target detection and plot-to-target association in automatic target-tracking systems in a disturbed environment. The section on target detection deals mainly with methods of assessing the performance of variations of a method of detection in different environments. The association section describes some variants of the trace-division method, a few methods specially intended for formation target tracking and some suggested types of filter for tracking a target in a heavily disturbed environment. Also discussed are the results of a simulation and the mathematical requirements. In the last of the articles abstracted here comparisons are drawn between the proposed principles of target tracking and what is termed the nearest-neighbour method, combined with a Kalman filter. The abstracts are intended for the benefit both of those with a mathematical background and of those wishing to have only a general picture of these methods.

- (68) FOA report C30203-E1, E3
 Millimetre-wave techniques. A study visit to Switzerland and the Federal German Republic in May 1980
 Gunnar Stenström and Ain Sume

October 1980

In May 1980 the authors paid a study visit to Switzerland and the Federal German Republic in order to visit institutes pursuing activities in the millimetre waveband and to discuss the design of radars and radiometers in this waveband and measurements made with them.

The visit in Switzerland was made to the University of Berne (Institut für Angewandte Physik), which in recent years has been performing measurements from ground-based and airborne radiometers between 1.8 and 230 GHz of features on the ground, including snow, and of molecules in the stratosphere and mesosphere. Activities include the development of subharmonically pumped converters.

In West Germany the visit was to AEG-Telefunken in Ulm, which has about 5 years experience of mm-wave systems, and has constructed several radiometers and radar systems for 35 and 94 GHz. They are willing to supply an Impatt transmitter of variable pulse-width at 10 W peak power at 94 GHz, and also a converter circuit with a local oscillator for the radar/radiometer planned by FOA 3.

In West Germany a visit was also paid to the Institut für Hochfrequenztechnik at the Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt in Oberpfaffenhofen, where they explained their development work and the results of measurements with airborne radiometers at 11, 32, 90 and 140 GHz, and also the work which had

development of physical models of passive

etry in reconnaissance satellites
October 1980

sent interesting reconnaissance sensors
The report deals with the advantages and
ensors in a satellite reconnaissance
ensor systems is provided as a basis for
wave band.

spheric data
November 1980

rogram MEDGEN, the purpose of which is to
ed in what are termed ionospheric data

nd DELTST programs, which are test pro-

American one which had been converted and
e in a poor state. It also contained a
nnecessary since a separate test program
ive the program from an IBM to the DEC-10,
igh tidying-up.

lly-developed, has no checks of input data.
ich have also been newly written.

ort C30004-E2 of August 1974, from which

Identification

navigation
October 1980

f studies conducted in recent years at the
ramework agreement between FOA and STU.

n of FOA report C30186-E3, 'positional
980. The April report mainly deals with
ffect on the accuracy of navigation.

detailed study of navigational errors,
them. Particular attention is paid to the
' type and variance in the local estimate.

E4 Countermeasures, including signa
(72) FOA report B20026-E4
The mechanism of a Baltic earthq
of recordings of surface waves
Ragnar Slunga

The earthquake of 25 October 1976
generate long-period surface waves which we
Fennoscandia. These recordings were inverted.
The resultant earthquake mechanism affords
and theoretically expected surface-wave sig
earthquake were mainly horizontal along the
smaller but detectable vertical movement al
moment amounted to 3.5×10^{15} Nm, and the f
the greatest quake in this area for 350 yea
which is too small to be able to determine
distinct tele-seismic recording found by th
mechanism if the radius of the source is as
strain gradient greater than 15 bar. The h
the earthquake was WNW-ESE, which is in agr
Europe according to several mutually consis
of displacement agrees with geological info
FOA reprints 1980/81:03

(73) FOA report C30202-E4
Weighted linear dispersive delay
of an output signal when the input
swept sine wave
Rickard Walldén

The report describes calculations
persive delay line with two different types
The two inputs were firstly a signal whose
from the characteristic matched to the dela
not 'fill up' the line. A brief account is
lations. The results are reported both in
upon it.

E5 Technical reliability
(74) FOA report C30205-E5
Industrial safety aspects of elec
Mats Gunnerhed

The present report gives the resu
at the request of the Council for Industria
tion on type-testing of control and protect
reference to electronic control systems.

The report approaches systems fro
adopting methods of analysis currently in u
in the change from electromechanics to elec
for the feasibility of the analysis of prod
ensure industrial safety.

F VEHICULAR AND SPACECRAFT TECHNOLOGYF4 Spacecraft

(75) FOA report C30206-F4

The 'Salyut-6' space station between 19 August 1979 to 30 June 1980
Astrid Rundkvist

November 1980

The present report deals both with the period during which 'Salyut-6' made unmanned orbits of the earth, i.e. 19 August 1979 to 9 April 1980, and 10 April to 30 June 1980 during the 185 days orbital period of the last crew, Leonid Popov and Valerij Ryumin, which ended with their landing in Kazakhstan on 11 October 1980. The events in 'Salyut-6' from 1 July to 10 October 1980 will be discussed in a later report.

F9 Materials

(76) FOA report C20388-F9

The effect of lightning on aircraft and composite materials
Anita Alm

November 1980

The report is based on literature mainly from the latter half of the 1970s and is divided into three sections.

The first deals with the characteristic properties and effects of lightning and certain current problems in lightning research.

The next section deals with aircraft in natural and simulated lightning environments, e.g. the frequency and type of lightning damage to different parts of an aircraft, and with different types of protection against the direct and indirect effects of lightning.

The final main section concerns fibre composites. Lightning damage and the testing of lightning protection for these modern aircraft materials are studied by means of simulation techniques. Unprotected composite materials are damaged by lightning, however damage can be avoided by suitably designed lightning protection. The poor electromagnetic shielding properties of composite materials raise a number of recalcitrant and unsolved problems as regards modern electronic equipment in aircraft. Composite material with defined and reproducible electrical properties cannot be produced at present.

H HUMAN ENVIRONMENTH3 Environmental extremes

(77) Effects of different body positions on the Eustachian tube function in the selection of airmen

Peter Groth and Örjan Tjernström

(In English)

Aviation, Space and Environmental Medicine, September 1980

(78) Venous gas bubbles while flying with cabin altitudes of airliners or general aviation aircraft 3 h after diving
Ulf Balldin

(in English)

Venous gas bubbles due to decompression were recorded by the precordial Doppler ultrasonic technique on test subjects at simulated flight altitudes of 1000-3000 m 3 h after diving to 15 or 39 m, which permit direct ascent. Bubbles developed at 3000 m altitude in 60% of subjects; in 90% after the shallower dives to 15 m for 100 min with occasional bubbles even in the first few minutes (on average after 12 min), and in only 30% after the deeper dives to 39 m for 10 min, when bubbles developed later (on average after 28 min).

E 2069

- (87) FOA report C54031-H6
 Irregular working hours. An investigation by interview into the working hours environment of locomotive drivers
 Jan E. Fröberg and Torbjörn Åkerstedt November 1980
- An account is given of the distribution of replies to an inquiry contributed by 1000 locomotive drivers. The results show that locomotive drivers are subject to extensive problems due to hours of work in addition to a stressful physical working environment. Working hours are highly irregular, and frequently involve locomotive drivers in serious difficulties in arranging their lives away from work. This irregularity also causes problems of sleep - nightshift working results in unsatisfactory sleep. Many drivers experience difficulty in remaining awake while driving at night. Otherwise however the driver's job has several positive aspects which may counteract the foregoing disadvantages. This report forms part of a wider project, which also includes field and laboratory studies.
- (88) FOA report C55043-H6
 The working environment of Ordnance workers.
 Part 1 Theoretical frame of reference
 Magnus Stenbeck and Bengt-Ove Gustavsson September 1980
- This report is the first part in a series of four reports which deal with the working environment of Ordnance personnel employed by the Defence services, from the standpoint of sociology and social psychology. Part 1 concerns our theoretical point of departure, and Part 2 the result of a study at an Ordnance unit with the Army. Part 3 is a continuation and development of the interpretative formulae in Part 2 linked with our own starting points in Part 1. In conclusion Part 4 contains some reflections on the development of the project in terms of scientific theory and research policy.
- The background and purpose of the project are described in more detail in the introduction to Part 2. Parts 1-3 satisfy the first of the subsidiary objectives described therein. The second subsidiary objective has been satisfied by documentation for and collaboration in the FMV project, 'new forms of work in Ordnance activities' (see FMV skr K:FDD A66:21/79, Appx. 1).
- The result demonstrates that Ordnance clerks exert very little influence on their work situation. The rationalisation measures taken during the last 10 year period tend further to aggravate this powerlessness by impoverishing the content of the job. The study has shown that the organisation of work and the structure of the working process have an overriding effect on an individual's attitude to work and on the collective strength and cooperation of the workforce.
- (89) FOA report C55044-H6
 The working environment of Ordnance workers.
 Part 2 Ordnance workers in an Army unit
 Magnus Stenbeck and Bengt-Ove Gustavsson September 1980
- This report is the second part in a series of four reports concerning the working environment of Ordnance workers employed by the Defence service from the point of view of sociology and social psychology. Part 1 deals with the theoretical basis of the project. This part is an account of our study of Ordnance work in an Army unit having what is termed Fo status (response to wartime mobilisation). This section contains a description of our method of work and an account of the result. In Part 3 the results

are linked more closely with the theoretical starting-points, and it further develops both the interpretation of the results and the theory. Finally Part 4 contains some reflections on the project in terms of scientific theory and research policy.

The result shows that Ordnance clerks exercise very little influence on their work situation. The rationalisation measures taken during the last 10 year period tend further to aggravate this powerlessness by impoverishing the content of the job. The study has shown that the organisation of work and the structure of the working process have an overriding effect on an individual's attitude to work and on the collective strength and cooperation of the workforce.

- (90) FOA report C55045-H
 The working environment of Ordnance workers.
 Part 3 Experience and reality in Ordnance Work - a concluding discussion
 Magnus Stenbeck and Bo-Göran Gustavsson September 1980

This report is the third part in a series of four reports concerning the working environment of Ordnance workers employed by the Defence service from the point of view of sociology and social psychology. Part 1 concerns the theoretical framework of the investigation, and Part 2 is an account of its method and results. In this third part the results are linked more closely with the theoretical principles. This has entailed a further development both of the results and of our theoretical framework. Finally Part 4 contains some reflections on the project in terms of scientific theory and research policy.

The result shows that Ordnance clerks exercise very little influence on their work situation. The rationalisation measures taken during the last 10 year period tend further to aggravate this powerlessness by impoverishing the content of the job. The study has shown that the organisation of work and the structure of the working process have an overriding effect on an individual's attitude to work and on the collective strength and cooperation of the workforce.

- H7 Testing and job analysis
 (91) FOA report B54022-H7
 Cardiopulmonary responses to arm exercise performed in various ways
 Ulf Danielsson and others (in English)

Power consumption, lung ventilation and heart rate were studied from arm exercise on a converted ergometer cycle, where the stress, the cranking rate and direction and the crank length all varied. The physiological variables were also studied when cranking was performed with both hands on the same side of the crankcase and with a diagonal grasp. Power consumption, heart rate and ventilation rose with increasing cranking speed, and reversed cranking was found to be more laborious than in the forward direction. The results were compared with those obtained for the cranking of a shelter fan, and calculations were made to show the differences in stress in the cranking of a shelter fan if the arm exercise is performed by one or two persons, and alternatively if it is performed by leg exercise by one person.

Offprint from Ergonomics (1980), 23, 5, 409-416; FOA reprints 1980/81:17

to materialise. This therefore means
within the department has increased
e-saving has been achieved. There was
department to use the KOM system, which
ical difficulties.

n by interviews with the scientist group,
ative staff with various duties in FOA.
KOM system might influence equality
ociations, the working environment and
d that it was still too early to be asking
consulted had not been using the system to
y be considered to be valuable in showing
ertain towards KOM. In general it may be
ages as regards working duties and the
rst expressed by the scientists. Involve-
rease since, thanks to KOM, it is easier
o obtain information more quickly. The
ough it was felt to be slight. As regards
hat some group was treated unfairly,
p.

introductory studies in social psychology
the FOA. Report No.2

rg October 1980

s conducted on the use of the KOM system.
ion, and these were divided into four
killed users and those who had ceased to
f FOA personnel who had never used the KOM
d more training in the computer field, which
se KOM, in their activity and in the type
rs.

up using KOM and those who had never used
degree of activity to the effect that they
munication. There probably also exist
situation had changed in a positive sense
whereas non-users felt their working situ-

rs had access to a combination of VDU and
rs had only limited access to terminals.

to handling information, and the same
ed for information was felt to be satisfied,
s were in demand.

LT 2069

LT 2069

The system was regarded as r
written communication were not felt to
who find it easy to express themselves

The effects of KOM were cons
among departments, an increase in the
groups. Many people can have their sa
possible to work in larger groups. Th
being overlooked, is diminished compa

The jobs to be performed and
the better, it is easier to obtain per
time-consuming communication. The in
seminate, though opinions were divided
difficult to assimilate.

Compared with other media, i
risks of any form of infringement of :
tion. However, there was an increase

Interviews with senior offic
divisions within FOA frequently occur
personal meetings daily contacts were
or colleges was rather less, contacts
telephone or letter.

Senior staff devoted a larg
administrative tasks. Personnel matt
important duties.

The KOM system had had some
half of KOM users, while the other ha
since the latter were not using the s
a new medium of communication, not ha
suited to KOM.

Systems of the KOM type we
changes, nor to mean that business sl
considered unrealistic for a system
monitoring of staff.

Matters internal to a bran
personal contact. For personnel to
may be a flexible procedure in some
workplaces should not be underestima

M INTERDISCIPLINARY STUDIES
M3 Security aspects of envir
(96) FOA report C10161-M3
The build-up of Soviet st
Gunnar Jervas

This study concerns certa
distribution of military strength i

more neglected aspects, leaving on one side the subjects more usually discussed. Thus no attempt is made to determine the exact pattern of the military balance of power. Instead emphasis is laid on what may be the cause of the power relationship having largely developed to the advantage of the East and the consequences of this. The discussion of causes is chiefly on the level of ideas, in the sense that efforts are concentrated on stating hypotheses which are assumed to explain the Soviet arms build-up. Analysis of the consequences is focussed on two different questions, one of which concerns the relation between the balance of power, stability and dangers of war during various phases of an international crisis. Bearing in mind that this study will clarify the possible consequences of some future balances of power, the author discusses the likely effects of alternative power relationships. The second question under the heading of Consequences is whether a future conflict may be expected to be conventional or nuclear.

This study forms part of the 'Eastern Project'.

- (97) FOA report CI0165-M3
 The Soviet Eastern Europe policy
 Ingmar Oldberg

October 1980

In parallel with the development of détente towards the West since the 1950s, the USSR has sought by various means to foster integration within the East Bloc. Its political and ideological effect on Eastern Europe is based however on cultural barriers and a growing nationalism, which is also creating problems in the Soviet Union.

The Soviet influence on Eastern Europe rests chiefly on her military dominance, although in the military sphere the USSR also has problems in the form of demands for equal standing, reduced defence expenditure and a run-down of troops.

Soviet efforts to integrate the East Bloc in economic terms by common planning, joint projects and the distribution of labour have intensified during the 1970s. This is hindered however by the different levels of development in these countries, their aims at self-sufficiency and the inefficient price system. The capitalist countries also offer the USSR and the East European states modern technology and equipment, which can be used to improve productivity in their stagnating economies. Steeply rising energy prices in the 1970s on world markets have enabled the Soviet Union to finance her Western imports. The USSR has also increased her prices in trade with the East European states, though in order to maintain these regimes in power she is compelled to continue to afford them economic advantages. The USSR can even allow them to expand their trade with the West and undertake economic reforms so as to become less of a burden on the USSR, provided that the Soviet pattern of socialist system is preserved and the power monopoly of the communist party is not threatened.

The super-power ambitions of the USSR in the Third World are a threat to détente and East-West trade and constitute an economic burden for the East European countries. This helps to lead them closer to Western Europe, although the USSR would never slacken her military control over them.

This study forms part of the 'East Project'.

1 teleconference system from the
ng environment

November 1980

2 system is used in FOA to facilitate communica-
ce Department and scientists outside FOA..

FOA study party on Teleconference Systems
respect to matters governed by the Law on
lating to intrusion into privacy, the attitude
sts for deletions or corrections etc.

fects of the system as regards the working
finds that the system does not involve any
ent of personal privacy and that most users
ced an improvement in their working situation.
m's findings is contained on pp 6-9 of this

ID CONTROL OF ARMAMENTS

entre. Input data for an

(in English)
November 1980

ogical data centre has been set up at the FOA
ted in Stockholm on 12-14 July 1979. For this
compiled, the content of which is presented in

entre. Database structure, computer
tive analysis
(in English)
November 1980

ogical data centre has been set up at the FOA
ted in Stockholm on 12-14 July 1979. For this
orted and computed data and methods for
cription of the computers and programs used

entre. Ouput of an
(in English)
November 1980

ogical data centre has been set up at the FOA
ted in Stockholm on 12-14 July 1979. For this
compiled with programs for analysing these

This report contains the result of the auto-

ID

1) teleconference system from the
ng environment
Hans Jansson, Mather

The report is about the development
of the system and its use. The data
seismological section during the week 15-
have been obtained from bulletins available
exchange. These data were sorted in data to
code of seismic events and for identity
taggers and the main part of the data were
digitized. Some 100000 seismic events
are also analysed and some 100000 events
are discarded. The code 11 was to

the seismic experts' group under the UN
other than that it is usual to trust seismological
identifications of seismic events to the deti
of seismic events.

(103) FOA report 17/80. The
international service of data
identification for
Hans Isachsen

A temporary international seismic
seismological observation and demonstration
report studies and procedures to compil
to make compilations of seismic data spe
part of a system for seismic data comple
The report describes several i
ability of the data to be used in compiles
and the use of the data. The data
the wave form of the seismic waves
taken from seismic stations and the statis
of the data. The data is used to get
data for seismic identification purposes
for geological observations and data outside
these from the data taken from this. A
compilation of results from the centers a
on seismic data is also found
seismological data.

(104) FOA report 18/80. The
international service of data
identification for
Hans Isachsen

A temporary international seismic
seismological observation and demonstration
report presents a system for seismic data for

defined seismic events. A signal is accepted as being associated with an event if the observed arrival time falls within a specified time-window about the theoretical arrival time. The procedure, which was tested on surface-wave data over a 4-day period, yielded an unexpectedly good result. About two-thirds of all observed surface-wave signals were associated, and a magnitude for the surface-wave was assigned to about one-half of all seismic events. The observed signal value was used to compute this magnitude and, from stations which had not observed a signal, the current background noise value was used. The magnitude of events as calculated by this means compared with the magnitude determined by individual stations was found to be one method of verifying the associations. Another and better method was to compare the theoretical with the reported azimuth as determined at 3-component stations.

- (105) FOA report C20386-TI
 International seismological datacentre. An algorithm for associating reported arrivals to a global seismic network into groups defining seismic events
 Ragnar Slunga (in English)
 November 1980

A temporary international seismological data centre has been set up at the FOA Seismological Observatory and was demonstrated in Stockholm on 12-14 July 1979. The global seismic network for monitoring a test ban treaty will report its observations (arrival times, amplitudes etc) to data centres. This report presents an automatic algorithm for the stage from these reported observations of seismic waves to the compilation of a list of seismic events (earthquakes or explosions) which produced the observations. The design of this algorithm naturally depends on the criteria for events which is used, and this algorithm is based on the kinematic criteria proposed in Geneva.

A special requirement which must be stipulated for an algorithm intended for use in monitoring a test ban treaty is that for completeness. All the events which satisfy the criteria for an event must be detected and reported. The report describes how completeness of the analysis can be achieved without resulting in unacceptably long execution times. The algorithm was applied to data from one week supplied by 50 stations and required 40 min CPU time on an IBM 370/75. The result shows that it is not only possible but also necessary, with automatic analysis, to achieve a complete analysis of the observations reported.

EMERGENCY COUNCIL FOR PSYCHOLOGICAL DEFENCE

- (106) BN report No.104
 Young people's attitude to defence, 1965-1979
 Lennart Jung (University of Stockholm) August 1980

This report by Jung describes the development of young people's attitudes to defence during the period 1965-1979, using material from opinion polls conducted by the Emergency Council. He has also studied certain different types of influence which may be assumed to have a causal importance for young people's attitudes to defence.

- (107) BN report No.105
 Mass media, society and defence
 Jan-Erik Nordlund (University of Umeå) October 1980
- This report presents the results of a local opinion poll in Umeå. Its purpose was to study the relation between people's mass media habits, and their attitudes towards,

The importance of their social position was
des some tendencies which mean that individuals
content also possess certain attitudes and
e.

December 1980
review of opinion by the Emergency Council.
of the population to society, parties and poli-
! their anxiety about the world situation, con-
stance etc.

s of the film 'All the President's Men'
Schenk-Hamlin (Journalism Quarterly)
Ingemar Staaf July 1980
ly of the film on Watergate, 'All the
attitudes to politics and the press. The
e film on such political attitudes as alien-
the electoral campaign then in progress in the
ilm on people's attitudes to the press.

Ingemar Staaf August 1980
about the Vietnam war correspond with what it
communication contains the results of some
which afford a somewhat different picture of
a war from what we usually imagine. Another
entirely succeeded in conveying.

(in English)
September 1980
iew of changes in the rôle of women in Swedish
is the employment of women in the armed
on from voluntary work as field kitchen staff

ADVANCE DISTRIBUTION:

APRE	Science Reference Library
AUWE	Royal Netherlands Embassy
ASWE	NGTE
CDE	NAL Bangalore, India
DOAE	RSRE, Malvern
DRIC	RARDE
PERME	RMCS
ITC	SHAPE
BAe	Zambian Embassy
IAM	
MVEE	
MRE	
	RAE
	DD(A)
	DD(E)
	DD(W)
	Main Library
	Heads of Departments
	Weapons Library
	Head of Weapons Divisions